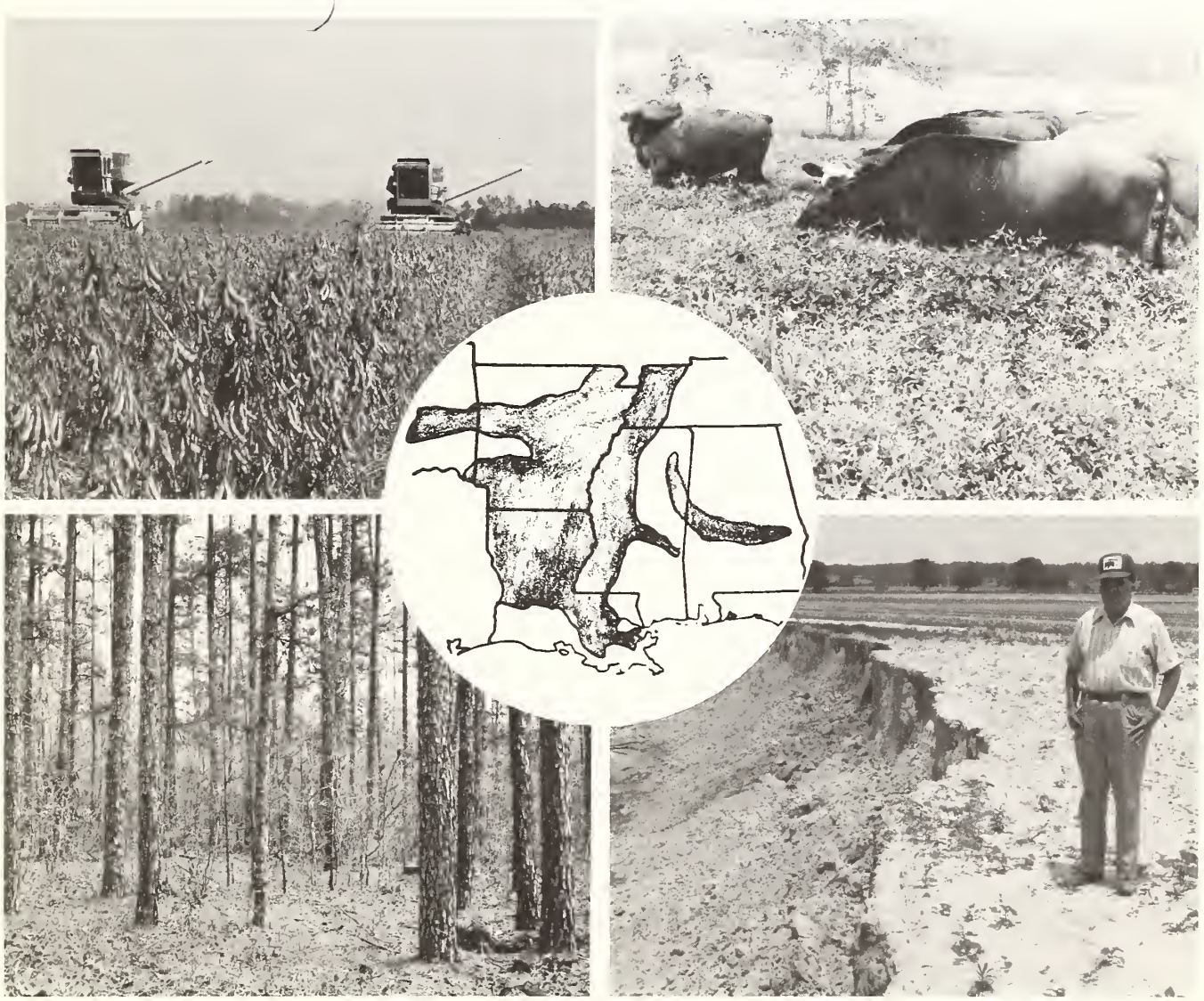
United States
Department of
Agriculture

**Soil
Conservation
Service**

Jackson,
Mississippi

Coffeeville Plant Materials Center
Coffeeville, Mississippi

Report of Activities — 1983



Including Field Plantings in Arkansas, Louisiana and Mississippi

COFFEEVILLE PLANT MATERIALS CENTER

COFFEEVILLE, MISSISSIPPI

Report of Activities -- 1983

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INTRODUCTION

The Coffeeville Plant Materials Center (PMC) is one of 24 centers operated by the Soil Conservation Service to develop better means of preventing soil erosion with plants. The PMC began operation on August 8, 1960 as part of a Flood Prevention Seed Unit that began in the 1930's. In 1982, the Seed Unit was discontinued and the plant materials program at the PMC was reorganized and expanded.

Most work at the PMC is conducted on Oklimeter silt loam, a nearly level, flood plain soil. Loring and Grenada silt loams with fragipans dominate the slopes.

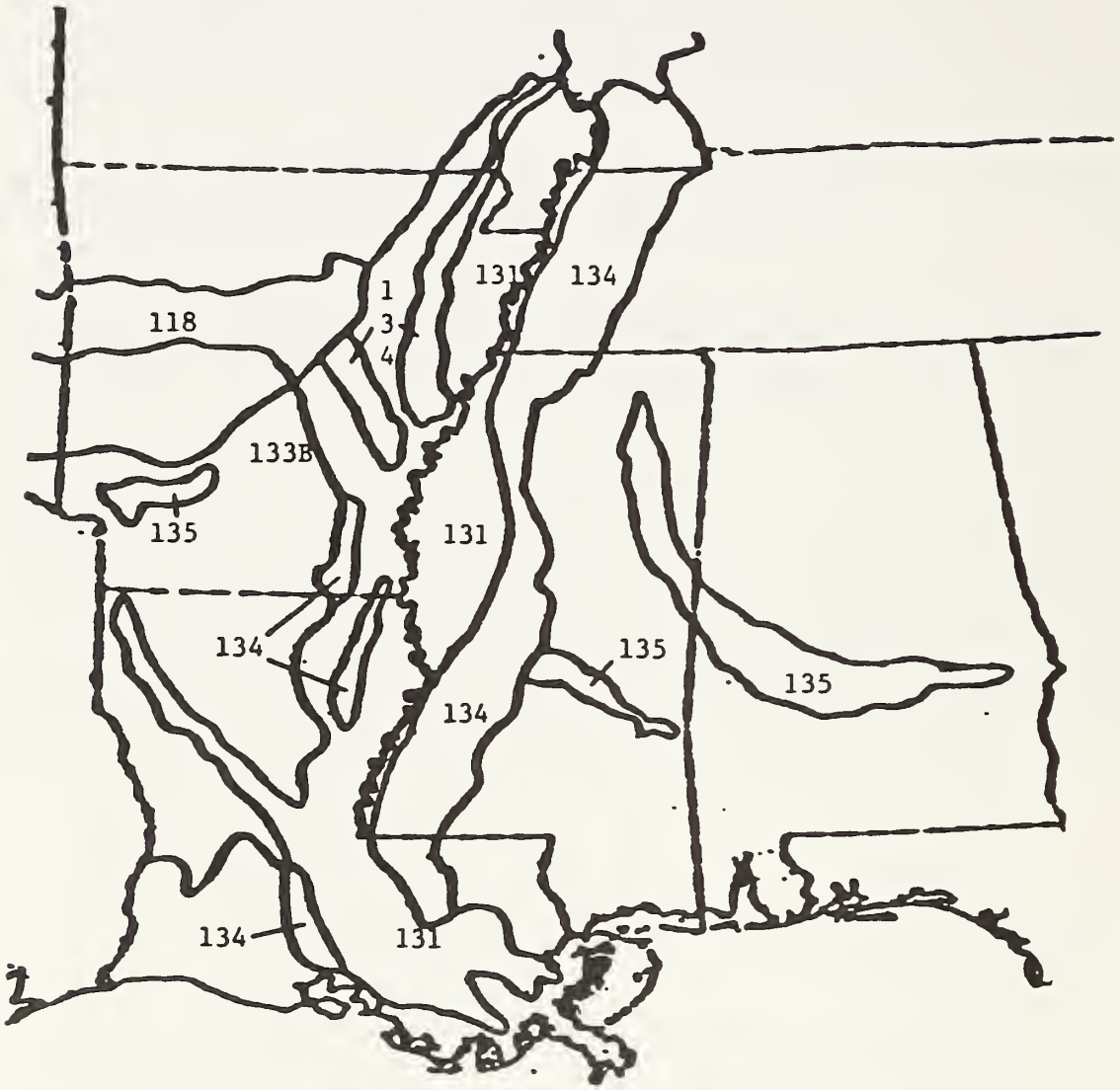
Summers are typically hot and humid and subfreezing temperatures occur 60 days a year on the average. Rainfall is normally highest in the spring and least in late summer or fall. Heavy rains may fall any month. The growing season is about 225 days. The average date of the first freeze is November 5 and the last is March 27.

At the PMC in 1983, as shown in Table I, the weather was a little cooler and much wetter than normal. Rainfall was 84.67 inches for the year compared to an average annual rainfall of 59.54 inches for the 1969 to 1982 period. Heavy rains in excess of 5 inches in 24 hours in May, November, and December caused flooding of PMC fields. The first freezing temperature was on October 14 and last on April 20. The first freeze to damage vegetation occurred November 12. The lowest temperature for the year was -2°F on the morning of December 25, 1983. The high was 98°F on August 23 and 24.

TABLE 1. TEMPERATURE AND PRECIPITATION AT COFFEEVILLE PLANT MATERIALS CENTER

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature (°F)														
Extreme 1983	High	65	71	80	83	84	91	96	98	94	79	72	68	98
	Low	20	24	27	32	43	53	58	67	41	31	25	-2	-2
Average 1983	High	48	53	60	65	79	85	92	93	84	67	58	40	68.7
	Low	32	37	42	45	57	65	71	72	62	46	38	26	49.4
Average	High	43	50	61	71	77	88	91	89	83	71	59	51	69.5
1975-1982	Low	28	34	43	52	62	69	74	72	64	49	41	33	51.8
Precipitation (in.)														
Total	1983	5.09	7.67	5.04	8.96	11.58	5.04	5.15	1.89	4.62	4.08	11.86	13.69	84.67
Average 1969-82		5.47	4.09	7.65	6.19	5.38	4.50	4.41	2.78	4.21	3.35	5.54	5.97	59.54

SERVICE AREA FOR COFFEEVILLE PMC



MLRA

118 - Arkansas Valley and Ridges
131 - Southern Mississippi Valley Alluvium
133B - Western Coastal Plain
134 - Southern Mississippi Silty Upland
135 - Alabama, Mississippi, and Arkansas Blackland Prairie

SERVICE AREA

The PMC service area covers a major portion of Arkansas, Louisiana, and Mississippi. Significant areas of Alabama and Tennessee are included. Climate is humid and temperate. Rainfall is approximately 50 inches for most of the area. Droughts in late summer and autumn are common. Temperature increases from north to south. Summer temperatures of 90° to over 100°F are commonly accompanied by high humidity. Winters are mild in southern part. Snowfall accumulations are common only in the north. Soil, vegetation, topography, and land usage are closely related to the major resource areas.

MLRA 118: ARKANSAS VALLEY AND RIDGES

The long, narrow valleys and ridges are the result of differential weathering of folded beds of sandstone and shale. The ridges are mostly forested by oak, hickory, and pine. Most of the remaining land is pasture. Small grain and hay are major crops, but vineyards, orchards, vegetables and soybeans are important locally.

MLRA 131: SOUTHERN MISSISSIPPI VALLEY ALLUVIUM

Much of the flat fertile land, commonly referred to as "the Delta," is in cotton and soybeans. Rice, sugarcane, and catfish are important in some locations. Natural vegetation is bottomland hardwoods. Controlling surface water and artificial drainage are major concerns of management.

MLRA 133B: WESTERN COASTAL PLAIN

Pine-hardwood forests cover most of the area. Lumber and pulpwood are important products. Most cleared land is in pasture and hay. Summer droughts are common in the predominantly sandy soil.

MLRA 134: SOUTHERN MISSISSIPPI VALLEY SILTY UPLANDS

Both cropland and streambank erosion are major problems in the silty, loessal soils. Land use is variable with about half being forest or mixed hardwoods and pine. Cleared land is mostly used for soybeans, cotton, corn, and wheat. Areas of forest and hay are being converted to row crops, increasing the problems for erosion.

MLRA 135: ALABAMA, MISSISSIPPI, AND ARKANSAS BLACKLAND PRAIRIE

Only small remnants of the former prairie vegetation remain. The heavy, shrink-swell soils derived from soft limestone or chalk are very susceptible to erosion. Most of the land is pasture or unproductive woodland of hardwoods and redcedar.

LONG RANGE PROGRAM

Many changes in priority resulted from the adoption of a new long-range program by the State Conservationist Advisory Committee in May 1983. Control of erosion in cropland was given the highest priority. Some problems, as the need for wildlife food and cover, that formerly had a high priority were given lower priority.

HIGH PRIORITY: CROPLAND

Erosion on cropland results from continuous cropping without conservation systems, absence of an adequate winter cover, and farming steep land not suited to continuous row cropping. Plants are being assembled to evaluate for use in conservation tillage, grassed waterways damaged by herbicides, field borders, and to supplement ordinary engineering practices. Plants that fix nitrogen are especially desirable.

MEDIUM PRIORITY: PASTURELAND

Warm-season grasses for the northern part of the service area and cool-season grasses to replace fescue to the south are two problem needing improved plants. A legume that is more compatible with grasses is also a need.

MEDIUM PRIORITY: WOODLAND

Better plants for clear-cut sites and other clearings in pine plantations are needed. Also commercially valuable timber for eroded Blackland Prairie soils is desired.

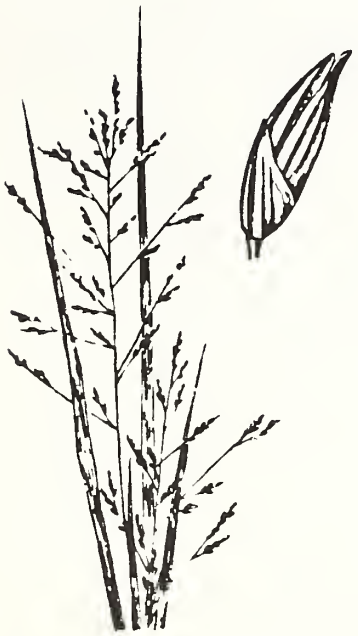
MEDIUM PRIORITY: CRITICAL AREAS

Plants are needed to control erosion on many streambanks and impoundments in the service area. Bare areas resulting from oil well operation and industrial wastes need vegetation.

The Plant Materials Program includes a series of seven steps. It is designed to determine the adaptiveness and performance of the plants and to insure an adequate supply of materials. From start to finish, the process requires about 15 years.

STEP 1: ASSEMBLY

After problems and priorities have been determined, the PMC begins to assemble plant materials that have the potential to solve priority problems. Plant collections may come from a variety of sources, both foreign and native. At the PMC, each collection is given a unique accession number for identification throughout the testing program. Assemblies are of two kinds, major and miscellaneous. The major assembly is made to locate the variety with the "best genes." It consists of a number of collections (ideally 100+) of the same species from as wide a range of climatic and soils conditions as possible. Miscellaneous assemblies of assorted species are also tested to determine if a species or cultivar might be useful in a specific situation.



Beaked Panicgrass
Panicum anceps Mich.

Beaked Panicgrass
Panicum anceps Mich.

The perennial, warm-season grass occurs over a wide range from New Jersey to Texas. It tolerates shade and low fertility, making it potentially useful in a variety of situations where little or no maintenance is available. The PMC has received 91 accessions to date, most are collections by SCS field offices. Forty-five were from Arkansas, eight from Louisiana, and 20 from Mississippi. Most of the remainder were supplied by the PMC at Quicksand, Kentucky. Because untreated seeds are slow to germinate, the seeds are to be stratified and planted in 1984.

Native Lespedezas
Lespedeza sp.

Several species of upright and prostrate lespedeza are native to the southeast. They have never been utilized as much as the introduced sericea and common lespedeza. There is the potential for the selection of a valuable variety of conservation plants from these. The PMC has about 30 accessions. Requests for more are planned in 1984.

Slender Lespedeza
Lespedeza virginica (L.) Britton

Sensitive Plant, Shame Vine
Mimosa strigillosa Torr. and Gray

This perennial legume forms a low, dense ground cover. It has potential for use in conservation tillage, field borders and roadsides. The PMC obtained about 10 accessions in 1983. More are scheduled in 1984.

Trailing Wild Bean
Strophostyles sp.

This is a twining, perennial legume that has potential for use for nitrogen-fixation with forage grasses and for wildlife food along field borders and forest clearings. About 20 accessions have been received at the PMC and additional collections are scheduled for 1984.

Trailing Wild Bean
Strophostyles helvola (L.) Elliott

Miscellaneous Species

Besides major assemblies, the PMC obtained a large assortment of other plants to evaluate for conservation use. Some are released varieties that are to be re-evaluated for purposes other than their common usage. Some are introduced species to be observed to see if they are adapted to the service area. Many were provided by seed dealers. Some were collected by interested individuals. The PMC encourages individuals to contribute plant materials to testing for control erosion. They may be for a major assembly, or they may be a especially vigorous plants growing under adverse conditions.

STEP 2: INITIAL EVALUATION

After the seeds or plants arrive at the PMC and are given an accession, they are planted in rows or small plots. Accessions in each assembly are planted in group for easier and more meaningful comparison. Periodically PMC personnel evaluate the plants for vigor, seed production, resistance to disease insects, and tolerance to heat, drought, and cold. Also, plants are measured and dates of flowering and maturity recorded. Three major assemblies were initiated in 1983.

Partridge Pea
Cassia fasciculata Mich.

This is a native, warm-season, annual legume that is common in old fields and disturbed areas. It is being evaluated for use in field borders, mine spoils and clearings in forests. It may also be used for a summer cover crop when quotas are placed on crops. In 1983, 91 accessions of Cassia were planted and evaluated, including 25 accessions of other species. Of these, 46 were collected in Arkansas, 16 in Louisiana, and 18 in Mississippi. Earlier in 1981, an assembly, including 23 accessions of partridge pea, was evaluated for wildlife use. In 1984, a planting is scheduled to evaluate accessions of both assemblies together where seeds still exist. The best looking accessions in 1983 were:

Partridge Pea
Cassia fasciculata Mich.

Accessions	Origin	MLRA
T-28375	Lee County, AR	134
T-28380	Sharkey County, MS	131
T-28393	Columbia County, AR	133B
T-28449	Mississippi County, AR	131

Purpletop
Tridens flavus (L.) Hitchc.

Purpletop
Tridens flavus (L.) Hitchc.

This is a warm-season, perennial bunch grass that is native to much of the eastern United States. It grows in a variety of situations and is being considered for a variety of uses from waterways to surface mines where a low level of maintenance is desirable. It is slow to germinate unless previously stratified. In 1983, evaluations were initiated on an assembly of 139 accessions. Of these, 68 were collected in Arkansas, 12 in Louisiana, and 17 in Mississippi. Most of the remainder came to Coffeeville from the Appalachians through the plant materials center at Quicksand, Kentucky.

Illinois Bundleflower
Desmanthus illinoensis (Mich.) MacM.

This is a warm-season, perennial legume that is common on flood plain and prairie soils. It is being evaluated for use in waterways, field borders and clearings in forests, and on surface mines. It may also have potential as a permanent field cover for use in conservation tillage. In 1983, there were 57 accessions evaluated, of these 12 were collected in Arkansas, three in Louisiana, four in Mississippi, 25 in Oklahoma, and 10 in Texas. Initial evaluations are scheduled to be concluded in 1985.

Illinois Bundleflower
Desmanthus illinoensis (Mich.) MacM.

Cooperative Evaluations

Plant materials centers across the nation cooperate to determine the range where promising plants may be successfully grown. Most come individually or in small groups. In 1983, small groups (5-30) of the following were comparatively evaluated at Coffeeville.

Species	Source	Completion
Yellow bluestem (Bothriochloa ischeamum)	ARS, Woodward, OK	1984
Limpograss (Hemarthria altissima)	SCS, Brooksville, FL	1984
Bitter Panicum (Panicum amarum)	SCS, Brooksville, FL	1985
Blue Panicum (P. antidotale)	SCS, Knox City, TX	1985
Brunswickgrass (Paspalum nicorae)	SCS, Americus, GA	1984
Indiangrass (Sorghastrum nutans)	SCS, Various PMCs	1984

STEP 3: INITIAL OR SMALL SCALE INCREASE

When an initial evaluation has been completed and accessions with superior qualities have been selected, they are increased in small plots to provide material for additional testing. In 1983, no accessions were in small scale increase that are not described below in the advanced testing discussions.

Small increase blocks of various species of dwarf willow have been made at the Center.

STEP 4: ADVANCED TESTING AND FIELD EVALUATION PLANTINGS

When sufficient material is on hand, the accessions selected as superior in initial evaluation are tested for ability to solve one or more of the major problems in the PMCs Long Range Program. The selected accessions are compared with standards, plant now considered as best to solve the problem.

Giant Reed
Arando donax L.

PI-432420; MS-4083
PI-432429; MS-4198
PI-432430; MS-4199
PI-432432; MS-4364

This is a tall, perennial grass that grows clumps of stems from short, thick rhizomes. It produces large plume-like seedheads that are sterile. Stems are killed by a hard freeze but regrowth is rapid in the spring. Plants are propagated readily from rhizomes, and less successfully from stem sections. It is slow to spread and does not become a pest. Because it forms a dense mat of rhizomes, it is difficult to uproot. It has good potential for erosion control on streambanks and shorelines that are sporadically subjected to turbulance.

Dense growth of giant reed.

In 1982, four accessions were selected for advanced testing from initial evaluations. Several tests were conducted in 1983 to compare the tolerance of the four to adverse conditions. Rhizomes were planted in different positions at depths ranging from 0 to 12 inches. Planting at a depth of 3-5 inches in the normal growing position was the best, but establishment was good for all treatments except where rhizomes were lying on the surface. Establishment was also excellent in plantings made each month throughout the year. The only problem was that fall plantings were soon winter-killed, but regrowth in the spring was about normal. All accessions performed well in every case, but initial results gave PI-423423 a slight edge.

During these trials it was noted that the average size of rhizomes differed for each accession. In 1983, a study was undertaken to determine if the difference in performance is due to the size or rhizome rather than the accession. If one accession appears superior as a result of this test, it will be selected as a candidate for release, probably in 1985.

Afghan Reedgrass
Calamagrostis pseudophragmites (Hall f.) Koel
PI-220584; MS-3361

This is a perennial, rhizomatous grass that grows along streams from the Ukraine through central Asia to Siberia. The accession was collected as seed in Afghanistan at an elevation of 5,300 feet. At Coffeeville, it is a prolific producer of plume-like seedheads, but no fertile seed have been obtained. It is successfully established from tillers. It spreads rapidly from rhizomes but is easily destroyed by plowing or herbicides.

The grass is similar to tall fescue with most growth in the spring and fall. It flowers in May and June and is semi-dominant in the summer and winter. Apparent forage quality is good to excellent. Laboratory analysis have shown the grass to have a crude protein content of 16.5 percent at maturity. It appears to have good potential for pasture or hay. It is being tested for use on surface mines, roadsides, and waterways.

In 1983, tests were conducted to determine the best method of establishment. Best success was obtained when three or more tillers per hill were planted 2-3 inches deep in the normal upright position. Almost all plants died that were randomly oriented and covered. Planting may be done mechanically if care is taken to position and cover the plants properly. When planted three feet apart, the ground was covered in two months when growth was most active in spring and fall. Plantings made monthly throughout the year were successful unless the soil was very dry.

Willows
Salix sp.

Species	Accession	Origin
Coat willow (Salix caprea)	PI-434284; MS-4417	LA. Tech Arboretum, Ruston
Gilg willow (S. gilgiana)	T-4882; MS-815	NPMC; Beltsville, MD
Erect willow (S. rigida)	T-4885; MS-878	Morton Arboretum, Lisle, IL
Prairie willow (S. humilis)	T-4886; MS-4410	Bryant County, OK

These four species of willow have been selected for advanced testing because they have been less susceptible to disease and insects and performed better at Coffeeville than 'Streamco' purple willow and 'Bankers' dwarf willow, two SCS releases. They produce numerous, small flexible branches from near the base and do not spread from seed like the common black willow.

Tests were made in 1983 to compare the ability of different size cuttings to root with and without rooting hormone, in and outside the greenhouse, at different seasons of the year. Streamco, Bankers, and black willow were used as standards. None rooted appreciably well except for cuttings made in the winter before buds broke dormancy. Rooting was poor for prairie willow, perhaps the best looking species in initial evaluation.

Reseeding Soybean
Glycine soja Sieb. & Zucc.
(also called G. ussuriensis)
PI-163453; MS-128

This vining, annual legume is a relative of commercial soybean. It produces many small, hard seeds that persist all winter and reseeds in the spring. It has been tested extensively for wildlife use. 'Bobwhite' soybean, a similar but earlier variety released by the PMC at Elsberry, Missouri, has been used as a standard for comparison. Both varieties are excellent sources of food for wildlife, but in the South, Bobwhite is less vigorous and matures too early to be useful for gamebirds in the winter months. The foliage of both is so highly desirable by deer that small planting may be completely devoured, a decided disadvantage where deer are abundant.

Tests at the PMC and in the field are near completion. The data are to be summarized in 1984 to be presented to the Release Committee. It has been referred to as MS-128 reseeding soybean for a number of years. No formal name has yet been selected. Individuals are encouraged to suggest a cultivar name.

In this production field of reseeding soybeans, corn is used as a support crop to make harvesting easier.

Field Evaluation Plantings

Advanced testing often includes off-center Field Evaluation Plantings (FEP) to test plants where soil or other conditions strongly contrast with those at the center. These are conducted as a part of the PMC program or in conjunction with other plant materials activity.

In 1983, a total of eight FEPs were established in Arkansas, Louisiana, and Mississippi. The largest FEP was in the Arkansas Blackland Prairie near Nashville where the heavy, droughty soils contrast sharply with the friable silt loam at the center.

Five FEPs were also made as part of a regional program to assist PMCs at Americus, Georgia and Brooksville, Florida with advanced testing of marshhay cordgrass (Spartina patens) and bitter panicum (Panicum amarum) respectively. Ten accessions of bitter panicum were planted in FEPs in Cameron and Lafourche Parishes, Louisiana. Both FEPs were washed away or were otherwise unsuccessful.

Five accessions of marshhay cordgrass, plus three promising accessions from Cape May, New Jersey for standards, were planted in five FEPs. They were on sites damaged by oil well activity and in coastal areas. The planting in Cameron Parish, Louisiana was destroyed by storm tides, more plantings in this project are scheduled for 1984.

Also two FEPs were made to evaluate four accessions of smooth cordgrass (Spartina alterniflora) in coastal marshes of Louisiana. Both FEPs were destroyed by wave action.

Marshhay cordgrass has performed well on land damaged by brine from oil well spills at the El Dorado FEP in Union County, AR.

STEP 5: FIELD OR LARGE SCALE INCREASE

Accessions that are candidates for release are grown in large quantities for the final stages of evaluation. Some of the material continues to be used in advanced evaluations or FEPs, but much is destined for field plantings. In 1983, fields of 'MS-128' reseeding soybean, 'Amcorae' brunswickgrass, and 'Appalow' sericea lespedeza were made primarily to provide seeds for field plantings.

STEP 6: FIELD PLANTINGS

The last step in evaluating a candidate for release by a PMC is the field planting (not to be confused with FEP). In field plantings, the test plant is compared to standards (best plants currently available for that purpose) in actual field situations. At this point, the test plants are still in the experimental stage and are not to be harvested and sold before they are formally released.

Prior to field planting, a long-range plan is prepared for the orderly testing of the promising plants. The plantings are usually scheduled over a number of years in a variety of soil and climatic conditions, if possible. Field plantings are coordinated by Plant Materials Specialists who generally serve more than one state, and each state may test plants from several PMCs. The test sites are provided by conservation district cooperators, mining companies, local governments, and others, and the plantings and evaluations are usually conducted through SCS field offices.

A summary of field plantings in Arkansas, Louisiana, and Mississippi is included at the back of this booklet.

Field plantings are made to test prospective releases in a variety of situations.

STEP 7: CULTIVAR RELEASE AND USE

When data from all of the previous steps have been assembled, they are presented to the Agricultural Experiment Station. If it is agreed that the plant is superior, the plant is cooperatively named and released for commercial production and use. The Plant Materials Center has responsibility for breeder and foundation seeds. The Coffeeville PMC maintains foundation fields of four releases.

1) 'Meechee' arrowleaf clover is a robust, late-maturing variety that produces large amounts of forage.

2) 'Wilmington' bahiagrass was selected because it was more cold-tolerant than Pensacola and had the potential to expand the range of bahiagrass farther north.

3) 'Chiwapa' Japanese millet is a tall grass that grows well on wet soils and was released for wildlife.

4) 'Halifax' maidencane is rhizomatous grass, native to wet areas, that was released for erosion control on shorelines and stream channels.

The final test of a cultivar is its use. Since the Plant Materials Program began, the SCS, in cooperation with other agencies, has released over 200 cultivars of superior plants for conservation purposes. PMCs do not supply the material directly to the general public. They only maintain a small "Foundation" block to provide genetically pure stock to qualified growers who supply the users.

Meechee arrowleaf clover is probably the highest producer of forage of the annual clovers.

REPORT OF FIELD PLANTINGS IN ARKANSAS, LOUISIANA, AND MISSISSIPPI

Plants are produced by a PMC primarily to solve problems in its service area, but frequently plants have a much broader application. Since the Coffeeville service area includes most of these three Delta States, this report is also included in the PMC Annual Report. Plants produced by the Coffeeville PMC are tested in other states, and plants from other PMCs are tested in the Delta States. Sometimes plants that have been released by other PMCs have not been adequately tested throughout their potential range and are placed in field plantings.

Most field plantings require several years to complete and none were completed in 1983. As the field plantings are completed, the data will be analyzed and made available to applicable SCS offices. Table II presents the status of field plantings.

Field Plantings of Autumn olive show PI-421132 to be superior to the standard, 'Cardinal', for wildlife in the Delta States. The fruit matures later and is available into the winter. The Cape May, NJ Center plans to release it as variety 'Ellagood.'

TABLE II. SCHEDULE FOR FIELD PLANTINGS IN ARKANSAS, LOUISIANA, AND MISSISSIPPI

PURPOSE [1]	STATES	PLANT MATERIALS	PMC [2]	PLANTING [3]	END [4]
H, J, M	AR-LA-MS	American jointvetch PI-421680	FL	1983-86	1989
G	AR-LA-MS	Stoloniferous peanut PI-338282	FL	1984-87	1995
G, R	LA-MS	Perennial peanut PI-262817	FL	1983-86	1991
B, D, G	AR-LA-MS	Yellow bluestem WW-477, PI-301477	ARS	1982, 1985	1987
B	AR	Sideoats grama Haskell, PI-433946	KC	1982-84	1988
B, D, EC EW, G	AR-LA-MS	Afghan reedgrass PI-220584	MS	1984-88	1989
D, EW	AR-LA-MS	Showy partridgepea PI-421727	KC	1981-84	1986
J	AR-LA-MS	Illinois bundleflower Sabine, PI-434011	KC	1982-84	1989
J	AR-LA-MS	Autumn olive Elagood, PI-421132	NJ	1980-82	1987
J	AR-LA-MS	Englemanndaisy PI-477962	KC	1984-87	1991
J	AR-LA-MS	Reseeding soybean MS-128; PI-163453	MS	1980-84	1985
J	AR-LA-MS	Maximilian sunflower Aztec, PI-421845	KC	1981-84	1989
B, C, D	AR-LA-MS	Western indigo T-4134	KC	1984-87	1991
B, D	AR-LA-MS	False anil indigo PI-198015	GA	1982-85	1990
B, D	AR-LA-MS	Sericea lespedeza Okinawa, PI-421873	GA	1982-84	1989
B, D	AR-LA-MS	Sericea lespedeza Appalow, PI-286482	KY	1986-89	1992
EW, F, G	AR-LA-MS	Switchgrass Alamo, PI-422006	KC	1981-85	1989
EC, F	AR-MS	Goat willow PI-434284	MS	1984-88	1989
EC, F	AR-MS	Erect willow T-4885	MS	1984-89	1989
EC, F	AR-MS	Prairie willow T-4886	MS	1984-89	1989
EC, F	AR-MS	Gilg willow T-04882	MS	1984-88	1989
G	AR-LA-MS	Indiangrass Lometa, PI-434362	KC	1984-87	1991
J	AR-LA-MS	Teosinte PI-422162	FL	1983-86	1991

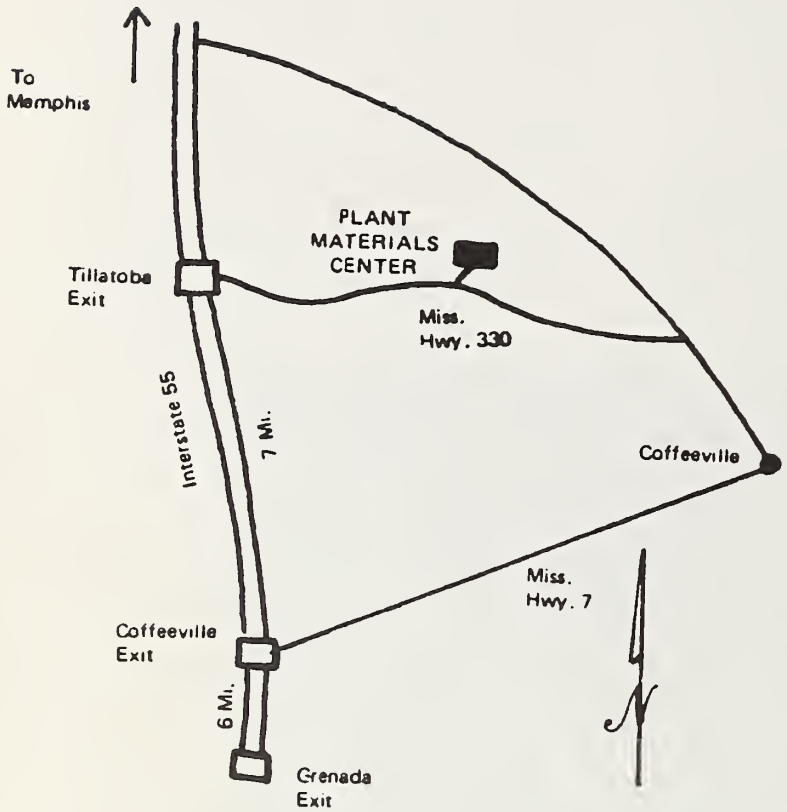
1/ PURPOSE
B= Roadside
C= Sand dune
D= Surface mines
EC= Stream channel
E= Grass-waterway
F= Shoreline
G= Pasture
H= Range
J= Wildlife
M= Covercrop
P= Saline problem
R= Forage

2/ PMC
FL= Brooksville, FL
GA= Americus, GA
KC= Knox City, TX
KY= Quicksand, KY
MS= Coffeeville, MS
NJ= Cape May, NJ
ARS= Agricultural Research Service Woodward, OK

3/ PLANTING = years in which field plantings are to be made

4/ END = Year in which data will be summarized unless ended earlier because the plants fail to meet expectations.

COFFEEVILLE PLANT MATERIALS CENTER
SOIL CONSERVATION SERVICE
U. S. DEPT OF AGRICULTURE



The Center is within the Holly Springs National Forest, on state Hwy 330, about 5 miles east of the Tillatoba Exit.

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